

ABSTRACT OF THE DISCLOSURE

The vibration and noise excited by the electromagnetic exciting force in the radial direction of an electric motor are suppressed.

5        In an electric motor 100, a rotor 1 is divided into four rotor pieces 3, 4, 5, and 6 for an axial length of  $2L$  of one group of the rotor core, and for example, the four rotor pieces 3, 4, 5, and 6 are ideally  $0.29L$ ,  $0.71L$ ,  $0.71L$ , and  $0.29L$  in axial length in the axial direction, and permanent magnets 2 of the rotor pieces 3, 4, 5, and 6 are arranged in the circumferential direction so that the phase differences of the electrical angle are  $0$ ,  $\pi$ ,  $0$ , and  $\pi$ . Further, when an effect is obtained even if the ideal axial length is changed, the tolerance of the  
10        aforementioned axial length is  $\pm 0.1L$ .  
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